1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ALPHA,2,4,DINITROPHENOL INDUCED EXPERIMENTAL CATARACT -U-

AUTHOR--BONASHEVSKAYA, T.I.

B

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 3, PP 73-75

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CATARACT, OPTIC LENS, EYE, RABBIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0120 STEP NO--UR/0357/70/000/003/0073/0075

CIRC ACCESSION NO--AP0129376

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129376

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CATARACTOUS CHANGES IN THE LENS PRODUCED BY A LONG TERM INTRODUCTION OF ALPHA,2,4,DINITROPHENOL IN A DOSE OF 1.5 MG-KG OF WATER SOLUTION WERE OBTAINED IN EXPERIMENTS ON RABBITS. LOCALIZATION OF THE LESION IN THE ANTERIOR EPITHELIUM OF THE LENS AND IN THE SUBCAPSULAR ZONE OF THE CORTICAL SUBSTANCE SUGGESTS THAT THESE CHANGES SHOULD BE REGARDED AS SUBCAPSULAR AND LENTICULAR CATARACTS. FACILITY: PATOMORFOLOGICHESKAYA LABORATORIYA INSTITUTA OBSCHEY I KOMMUNAL'NOY GIGIYENY IM. A. N. SYSINA, MOSKVA.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--INHIBITION OF BACTERIAL HISTIDINE DECARBOXYLASE BY HYDROXYLAMINE DERIVATIVES -U-

AUTHOR-(02)-BONCHAR, N.A., MARDASHEV, S.R.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(2), 224-8

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INHIBITION, HISTIDINE, ENZYME

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0334 STEP NO--UR/0218/70/035/002/0224/0228

CIRC ACCESSION NO--AP0135827

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135827

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROCOCCAL HISTIDINE DECARBOXYLASE (I) WAS INHIBITED BY BETA AMINOOXY ALPHA ALANINE (II), GAMMA AMINOOXY ALPHA AMINOBUTYRIC ACID, H SUB2 NOH, OR AMINOOXYACETIC ACID. II AND H SUB2 NOH INHIBITED I IRREVERSIBLY, BUT AMINOOXYACETIC ACID INHIBITION WAS COMPETITIVE. APPARENTLY, THESE COMPDS. COMBINE WITH AN ESSENTIAL CARBONYL GROUP ON THE ACTIVE SITE OF THE ENZYME.

FACILITY: ALB. ENZYMOL., INST. BIOL. MED. CHEM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.375.82

BONCH-BRUYEVICH, A. M., KOSTIN, N. N., PRZHIBEL'SKIY, S. G., KHODOVOY, V. A., KHROMOV, V. V., CHIGIR', N. A.

"Resonance Nonlinear Phenomena in Elementary Noninteracting Systems"

V sb. Nelineyn. protsessy v optike. (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 75-95 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D861)

Translation: A study was made of nonlinear phenomena in sets of elementary noninteracting systems under the effect of powerful radiation as a function of its spectral composition. The displacement and splitting of the D-absorption lines of the chief doublet of the K atom in the radiation field of a ruby laser were investigated experimentally. Nonlinear phenomena were detected in connection with the variation of the refraction coefficients of the atomic vapors of Rb and K in a laser radiation field with a broad spectrum ($\Delta \lambda$ = 10 nm) (the variation of the polarization, focusing, and defocusing of the radiation passing through the vapor, induced parametric scattering). Intense directional radiation was observed in a number of transitions of the Rb atom on excitation by a laser in a pigment (λ = 775-795 nm). The phenomenon of nonlinear population of the excited states of the K and Rb molecules with nonuniformly broadened absorption bands was detected and investigated.

1/2

USSR

BONCH-BRUYEVICH, A. M., et al., Nelineyn. protsessy v optike. (Nonlinear Processes in Optics--collection of works), Vyp. 2, Novosibirsk, 1972, pp 75-95

A study was made of the saturation kinetics of the absorption in red bands of Rb molecules under the effect of ruby laser radiation. It was established that the absorption decreases uniformly along the entire band and is restored within $2 \cdot 10^{-2}$ seconds. These phenomena are explained by dissociation and reduction of the Rb molecules. The results of all of the experiments were compared with the theoretical calculations. The bibliography has 10 entries.

2/2

Television

USSR

UDC: 681.14.523.8

BRAUDE, G. V., BONCH-BRUYEVICH, A. M., GEL'FANDBEYN, Ya. A., GULIN, I. N., KRIVOSHEYEV, M. I., MIRSKIY, G. Ya., TISHCHENKO, I. M., TEL'NYKH, O. A., KHESIN, A. Ya.

"A Television Device for Determining the Coordinates of Point Objects"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 26, Sep 71, Author's Certificate No 313210, p 165

Translation: This Author's Certificate introduces a television device for determining the coordinates of point objects. The device contains a television transmitting tube with memory, an output scanning unit, a video signal processing unit, an erasure unit, a synchronizing unit, a cadence pulse generator, an optical shutter, and a data input module. As a distinguishing feature of the patent, the accuracy of coordinate determination is improved by tying series-connected horizontal and vertical interrogation counters to the output of the cadence pulse generator. The counter outputs are connected through shaping matrixes for horizontal and vertical deflection to the input of the output scanning unit. At the same time, a second output of the vertical interrogation counter is connected through a decoder to the data input module.

1/1

USSR

UDC 621.375.9:535+535.34

BONCH-BRUYEVICH, A. M., POTAPOV, S. Ye., KHANIN, Ya. I.

"Saturating Absorption at Wavelength 1.06μ in Glass"

Leningrad, Optika i Spektroskopiya, Vol 28, No 1, Jan 70, pp 203-205

Abstract: It was previously shown by the authors that the spike structure of laser radiation due to saturating absorption in neodymium-doped glass is found only under the action of pumping radiation with $\lambda < 450$ nm. The present article describes experiments staged for the purpose of ascertaining whether the action of this radiation results in population of high energy states of neodymium ions from which further absorption at the generation wavelength is possible, or whether saturating absorption is stimulated by the short-wave sector of the pumping spectrum in the glass matrix itself regardless of whether Nd^{3+} ions are present in it. It was found that saturating absorption occurs in the glass regardless of the presence of the neodymium dopant and is stimulated by relatively short-wave pumping radiation. An estimate was made of the parameters characterizing the stimulated saturating absorption in the glass. It is suggested that the appearance of centers of saturating absorption is determined by the properties of the glass matrix and is not due to its activation by neodymium

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USSR

BONCH-BRUYEVICH, A. M., et al., Optika i Spektroskopiya, Vol 28, No 1, Jan 70, pp 203-205

ions. A rod of inactivated glass placed in the cavity together with an active body can be used as a solid shutter controlled by ultraviolet irradiation. The pulse repetition rate of the laser radiation can be varied within a wide range by changing the ultraviolet irradiation intensity.

The authors thank I. M. Buzhinskiy for his assistance in the work and useful discussions.

2/2

Acc. Nr: AP0049966 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0051

B

95176k Lasing and spectral characteristics of some polymethine dyes. Bonch-Bruevich, A. M.; Zatsepina, N. N.; Razumova, T. K.; Rubanova, G. M.; Tupitsin, I. F.; Shuvalova, V. N. (USSR). *Opt. Spektrosk.* 1970, 28(1), 100–4 (Russ). Lasing was followed for a series of polymethine dyes on excitation by a ruby laser. The absorption and fluorescence band positions, stability, and the relative transformation coeffs. of the pumping energy are tabulated. For cryptocyanine (I), dicarbocyanine (II), and tricarbocyanine, the lasing characteristics are given. The quantum yields and fluorescence spectra are almost independent of the dielec. const. of the solvent; the quantum yields increase with the solvent viscosity. The transformation coeffs. of I and II in EtOH decrease with the no. of the excitation pulse, when the laser emits several pulses in a flash, proceeding in ~100 μsec. The degree of the decrease depends on the excess of the excitation power of the laser over the threshold of the generation excitation of the dye.

P. Adamek

1/1

I/3

REEL/FRAME
19801904

7

USSR

UDC 621.391:519.2

ZHURAVLEV, V. I., BONCH-BRUYEVICH, A. M.

"Noiseproofness of the Quasisynchronous Method of Receiving Signals with Pseudonoise Modulation"

Tr. Mosk. elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1970, vyp. 1, pp 13-17 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A31)

Translation: This article contains an analysis of the joint effect of accuracy of operation of time and phase synchronization channels with active matched filtration of signals with pseudonoise modulation. There are two illustrations and a three-entry bibliography.

1/1

1/2 044 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--NATURE OF THE BREAKDOWN OF THIN METALLIC LAYERS BY LASER RADIATION -U-

AUTHOR-(04)-BONCHBRUYEVICH, A.M., IMAS, YA.A., LIBENSON, M.N., SPIRIDONOV, B.N.

COUNTRY OF INFO--USSR

B

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, MAR. 1970, P. 658, 659

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--METAL FILM, ALUMINUM, LASER RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1255 STEP NO--UR/0057/70/040/000/0658/0659

CIRC ACCESSION NO--AP0115272

UNCLASSIFIED

2/2 044 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0115272
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS OF THEORETICAL AND EXPERIMENTAL STUDIES OF THE THRESHOLD VALUES OF BREAKDOWN INDUCING LIGHT FLUX DENSITIES DURING THE ACTION OF LASER RADIATION ON THIN METALLIC FILMS. AN ECUATION IS DERIVED FOR THE THRESHOLD DENSITY CORRESPONDING TO THE INITIATION OF BREAKDOWN, I.E., HEATING OF THE SURFACE TO MATERIAL'S BOILING POINT AT ATMOSPHERIC PRESSURE. AT THIS TEMPERATURE, THIN LAYERS ARE TOTALLY DESTROYED AND THICK LAYERS IRREVERSIBLY LOSE THEIR REFLECTIVE PROPERTIES. CALCULATIONS ARE COMPARED WITH MEASURED DATA FOR AN ALUMINUM LAYER DEPOSITED ON A GLAS SUBSTRATE.

UNCLASSIFIED

Acc. Nr: AP0047607 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0057

105059r **Breakdown of dielectric reflecting coatings under the influence of laser radiation.** Kuznetsov, A. Ya.; Poplavskii, A. A.; Bonch-Bruevich, A. M.; Imas, Ya. A.; Rozhdestvenskii, Y. V.; Tikhomirov, G. P.; Fadeeva, E. I. (USSR). *Zh. Tekh. Fiz.* 1970, 40(1), 170–2 (Russ). The threshold of breakdown of coatings was measured as a function of the direction of the effect, the no. of coating layers, the temp. of the base during the application, the purity and structure of the starting materials, the degree of orientation of microcrystals in the layer, the presence of defects, and the structure of the layer. The breakdown threshold of vacuum dielec. coatings on K-8 glass depended on the degree of orientation and the structure of crystals in the ZnS layer, and on the compn. of the surface of the coatings.
M. Tichy

REEL/FRAME
19791173

1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SATURATED ABSORPTION ON A 1.06 MU WAVELENGTH IN GLASS -U-

AUTHOR-(03)-BONCHBRUYEVICH, A.M., POTAPOV, S.YE., KHANIN, YA.I.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(1), 203-5

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS PROPERTY, NEODYMIUM GLASS, GLASS STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0634 STEP NO--UR/0051/70/028/001/0203/0205

CIRC ACCESSION NO--AP0119546

UNCLASSIFIED

2/2 009 UNCLASSIFIED

CIRC ACCESSION NO--AP0119546 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABSORPTION SATN. CENTERS APPEAR IN GLASSES AS A RESULT OF GLASS MATRIX PROPERTIES AND ARE NOT AFFECTED BY THE PRESENCE OF ND PRIME3 POSITIVE IN GLASS.

UNCLASSIFIED

USSR

UDC 539.293:538.3

BONCH-BRUYEVICH, V. L., and VAVILOV, V. S.

"Problems of Modern Semiconductor Physics"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 7-13

Abstract: This article deals with the standard problems of semiconductor physics limited to those which focus on the theoretical aspect rather than on the practical. The report was presented at the extended session of the section on semiconductor physics and chemistry under the scientific and technical council of the USSR Ministry of Higher and Secondary Special Education.

The discussion is divided into two basic areas of study: experimental and theoretical investigation of the energy spectrum of matter and investigation of essentially nonequilibrium processes in a charge carrier system. Accomplishments in the field of semiconductor physics are reviewed briefly, and some of the most interesting problems under study today are listed. It would be of interest experimentally to check the new ideas regarding the nature of "ionization" energy losses as the transmission of energy, not to individual

USSR

BONCH-BRUYEVICH, V. L., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 7-13

electrons of a stopping material, but to collective oscillation quanta -- plasmons. A sharply defined minimum of the reflectance of a semiconductor is observed near plasma resonance, the study of which requires use of volumetric excitation by pulses of accelerated electrons and the study of the optical absorption, electrical conductivity, and other parameters of the excited semiconductor. The study of domain instabilities such as the Gunn effect is of great interest in view of probable applications such as microradio wave generation, modulation of light fluxes, and the possibility of creating theoretically new radiation receivers. The broader understanding of the classical concept of phase transitions by which a set of charge carriers in semiconductors can be considered as a "multiphase" system has opened up new areas of study. Experimental data needs to be obtained for various states of a set of nonequilibrium carriers for crystals with large widths of the forbidden zone in connection with the nature of forces causing condensation of carriers into plasma drops.

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USSR

BONCH-BRUYEVICH, V. L., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 4, 1971, pp 7-13

Some approaches to the theoretical and experimental investigation of the above-mentioned and other related problems are briefly outlined. It is noted that the physics of semiconductors, which once dealt with uncontrollable materials, is now converting to the study of controlled, disordered systems. Biological materials are considered to fall within this category, permitting semiconductor physics to build a bridge between physics and biology.

3/3

1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--BEHAVIOR OF THE CHARGE CARRIERS IN SLOWING VARYING RANDOM FIELD AND SEMIPHENOMENOLOGICAL APPROACH TO THE THEORY OF ELECTRONIC PROCESSES IN

AUTHOR--GONCHAROVICH, V.L.

B

COUNTRY OF INFO--USSR

SOURCE--J. NON CRYST. SOLIDS (NETHERLANDS), VOL. 4, P. 410-16, APRIL 1970

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CHARGED PARTICLE, ELECTROMAGNETIC WAVE PHENOMENON, ELECTRON CHARGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1744 STEP NO--NE/0000/70/004/000/0410/0416

CIRC ACCESSION NO--AP0133649

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133649

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DISCUSSION IS GIVEN OF THE BEHAVIOR OF CHARGED CARRIERS IN A DISORDERED SYSTEM WITH RANDOM NATURE OF THE FIELD OF FORCE.

FACILITY: MOSCOW UNIV., USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--YTTERBIUM 169 LEVELS ARISING DURING THE DECAY OF LUTETIUM 169 -U-

AUTHOR-(04)-BONCHOSMOLOVSKAYA, N.A., GRIGORYEV, YE.P., LIPTAK, J., URBANEC, J.

COUNTRY OF INFO--USSR

B

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(1), 12-28

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NUCLEAR ENERGY, YTTERBIUM ISOTOPE, LUTETIUM ISOTOPE, RADIOACTIVE DECAY SCHEME, TRANSITION RADIATION, GAMMA TRANSITION, NEUTRON BOMBARDMENT, DEUTERON INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0278 STEP NO--UR/0048/70/034/001/0012/0028

CIRC ACCESSION NO--AP0105352

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420013-7"

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105352

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LU FRACTION SEPD. BY CHROMATOG. FROM TA TARGET IRRADIATED WITH 660-MEV P WAS STUDIED WITH 6 AND 12 CM PRIME3 GE(LI) DETECTORS WITH RESOLN. OF 4.5 AND 5.5 KEV, RESP. LINES (127) IN THE ENERGY RANGE 24.2-2300 KEV WERE TABULATED TOGETHER WITH THEIR INTENSITIES REFERRED TO THE 1184.5 KEV LINE AS THE STD. A DETAILED DECAY SCHEME IS PRESENTED. THE PRIME169 YB GAMMA BANDS WITH GROUND LEVELS SEVEN HALVES PLUS (633), ONE HALF MINUS (521), FIVE HALVES MINUS (512), FIVE HALVES MINUS (523), THREE HALVES MINUS ((521) PLUS (521) SUBVIBR PLUS ...), (512) SUBGAMMA,VIBR PLUS ONE HALF MINUS (510), FIVE HALVES PLUS (642), THREE HALVES PLUS ((651) PLUS (633) SUBVIBR) ARE DISCUSSED IN DETAIL IN TERMS OF THEIR OCCURENCE DURING (N, GAMMA), (D,P), (D,T) REACTIONS, AND BETA TRANSITIONS, THEIR MULTIPOLARITY, AND RELATIVE PROBABILITY. ALSO DISCUSSED ARE THE 960.4-KEV, SEVEN HALVES PLUS, SEVEN HALVES MINUS (514), 1449.7 MINUS, AND 1462.8-KEV LEVELS AND LEVELS WITH ENERGY LARGER THAN 1500 KEV. THE 1070.6-KEV TRANSITION (EO PLUS E2) WAS ASCRIBED TO DEESCITATION OF A BETA VIBRATIONAL LEVEL. ACCORDING TO LOG FT VALUES 3 TYPES OF BETA DISINTEGRATION OF PRIME169 LU WERE FOUND. FACILITY: OB'EDIN. INST. YAD. ISSLED., DUBNA, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LONGITUDINAL INSTABILITIES IN CIRCULAR CHARGED BEAMS. PART I. EFFECT OF NEGATIVE MASS -U-

AUTHOR-(02)-BONCHOSMOLOVSKIY, A.G., PERELSHTEIN, E.A.

COUNTRY OF INFO--USSR

SOURCE--(UCRL TRANS 1402) TRANSLATED BY T. WATT FOR LAWRENCE RADIATION LAB., BERKELEY, CALIF., FROM REPORT JINR P9 4424. 17P. DEP. CFSTI

DATE PUBLISHED----------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM STABILITY, CIRCULAR WAVEGUIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2189 STEP NO--US/0000/70/000/000/0017/0017

CIRC ACCESSION NO--AT0127553

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AT0127553
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STABILITY OF AN ELECTRON RING PLACED IN AN INFINITELY LONG, PERFECTLY CONDUCTING CIRCULAR TUBE WAS ANALYZED (FINITE CONDUCTIVITY AND THE ASSOCIATED RESISTIVE INSTABILITIES CAN ALSO BE TAKEN INTO ACCOUNT IN THIS METHOD. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LONGITUDINAL INSTABILITIES IN CIRCULAR CHARGED BEAMS. PART II. RADIATIVE INSTABILITY -U-

AUTHOR-(02)-BONCHCSMOLOVSKIY, A.S., PERELSHTEIN, E.A.

COUNTRY OF INFO--USSR

SOURCE--(UCRL TRANS 1403) TRANSLATED BY T. WATT FOR UNIV. OF CALIFORNIA, LAWRENCE RADIATION LAB., BERKELEY, FORM REPORT JINR P9 4425. 12P. DEP.

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAN STABILITY, ELECTRIC IMPEDANCE, ELECTRON RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2190 STEP NO--US/0000/70/000/000/0012/0012

CIRC ACCESSION NO--AT0127554

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127554

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMPEDANCES IN THE RESONANCE CASE WERE CALCULATED. RADIATIVE ENERGY LOSSES ARE THEN CALCULATED.

FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

UNCLASSIFIED

USSR

BONDAR, A. A., REZNIK, A. M.

"Analog Model of a Neuron Net with Distributed Memory"

Probl. Bioniki. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Problems of Bionics. Republic Interdepartmental Thematic Scientific and Technical Collection], 1972, No 9, pp 97-105 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V725, by the authors).

Translation: The operation of a neuron network with random organization is analyzed. A model is suggested for learning in neuron networks of analyzers. 14 biblio. refs.

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USSR

UDC 582.288.577.391

ZHDANOVA, N. M., and BONDAR, A. I., Institute of Microbiology and Virology, Academy of Sciences, Ukrainian SSR

"The Radioresistance of Lyophilized Cladosporium Sp. 396 Conidia"

Kiev, Mikrobiolohichnyy Zhurnal, Vol 32, No 1, Jan/Feb 70, pp 32-35

Abstract: The effect of gamma-radiation from Co^{60} on the radioresistance of dry conidia of Cladosporium sp. 396 was studied. The Weston Lyophilization method was used to dry the conidia. Experiments showed that the resistance of lyophilized conidia to gamma-radiation is noticeably lower than that of untreated wet controls. A dose relationship was discovered between survival and irradiation in the range 130-270 rad/sec, similar to previously observed phenomena with untreated conidia in water and on a cover glass. It was suggested that the reason for the lower resistance to gamma-radiation of fungal conidia is due to changes in the chemical structure of fungal melanine due to lyophilization.

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USSR

UDC 621.81:539.4

BONDAR', G. G., PUKIN, B. YU., PERVUSHIN, YU. S.

"Study of the Fatigue Characteristics of the Strip and Wire Materials of Flexible Hoses"

Tr. Ufim. aviats. in-ta (Works of the Ufa Aviation Institute), 1971, vyp. 32, pp 121-126 (from RZh--Mekhanika, No 6, Jun 73, Abstract No 6V892)

Translation: A study was made of the fatigue strength of strip and wire materials of flexible metal hoses. Tests were run on specimens of Kh18N10T steel 150 × × 10 × 0.8 mm cut out along the generatrix from tubular billets of metal hoses. The tests on the specimens for cyclic bending were run on the DP-5/3 unit. The results of the tests were processes statically by the least squares method and represented in the form of a graph expressing the relation of the scale of the total deformation during bending of a plate to the number of cycles before rupture. It is pointed out that the presence of welds in a number of the structural designs of the metal hoses required additional investigation of the fatigue strength of the roll weld. The tests were performed on a lot of specimens numbering 30 by the procedure described above for flat specimens. The test results demonstrated the correctness of the preceding relations for the case of multiple bending of a specimen with a weld. The test results for the plates with preliminary ironing indicate that during repeated static deformation with

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USSR

BONDAR', G. G., Tr. Ufim. aviats. in-ta, 1971, vyp. 32, pp 121-126

given deformation amplitude (ε = 1.6%), work hardening does not promote an increase in the cyclic strength of Kh18N10T steel.

The bending strength testing of wires used to manufacture braid were run by the adopted procedure in the maximum relative deformation range of ε = 0.009-0.07. The test results are represented in the form of graphs from which it is obvious that the nature of the function $N = f(\varepsilon)$ has the same form as for plates. It is pointed out that the results obtained can be used when planning and designing metal and polyvinyl flouride hoses.

2/2

USSR UDC 546.46'21:539.4.016.3

BONDAR', I. A., VOLYNETS, F. K., YDALOVA, L. V., and USACHEV, V. P.,

"Physical and Chemical Processes Involved in Heat Treatment of Polycrystalline Magnesium Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

Abstract: A study was made of the effect of heat treatment of polycrystalline hot pressed specimens of magnesium oxide containing one wt.% lithium fluoride in air at 700-1300°C on density, grain growth, and transparency. During heat treatment, recrystallization occurred, the activation energy of which was 27.3 kcal/mol. Recrystallization during heat treatment was accompanied by a process of recondensation of particles of the dispersed phase. The activation energy of this process, calculated from the dimensions of the dispersed particles in specimens which underwent various heat treatments, was 22.5 kcal/mol. The specimens of polycrystalline magnesium oxide studied were found to have circular formations larger than grains, inclusions comparable in

1/2

USSR

UDC 546.46'21:539.4.016.3

BONDAR', I. A., VOLYNETS, F. K., YDALOVA, L. V., and USACHEV, V. P.,

"Physical and Chemical Processes Involved in Heat Treatment of Polycrystalline Magnesium Oxide"

Moscow, Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

Abstract: A study was made of the effect of heat treatment of polycrystalline hot pressed specimens of magnesium oxide containing one wt.% lithium fluoride in air at 700-1300°C on density, grain growth, and transparency. During heat treatment, recrystallization occurred, the activation energy of which was 27.3 kcal/mol. Recrystallization during heat treatment was accompanied by a process of recondensation of particles of the dispersed phase. The activation energy of this process, calculated from the dimensions of the dispersed particles in specimens which underwent various heat treatments, was 22.5 kcal/mol. The specimens of polycrystalline magnesium oxide studied were found to have circular formations larger than grains, inclusions comparable in

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USSR

BONDAR', I. A., et al., Neorganicheskiye Materialy, Vol 7, No 4, Apr 71, pp 634-637

size to the dispersed particles, and inclusions on grain boundaries and in grain boundaries, the dimensions of which were an order of magnitude less than the dimensions of the grains and vacuum pores.

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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--INFRARED SPECTRA AND CLASSIFICATION OF RARE EARTH ORTHOGERMANATES -U-

AUTHOR-(04)-TENISHEVA, T.F., LAZAREV, A.N., BONDAR, I.A., PETROVA, M.A.

B

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 766-72

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, CHEMISTRY

TOPIC TAGS--IR SPECTRUM, SPECTROSCOPIC ANALYSIS, CRYSTAL STRUCTURE, GERMANIUM COMPOUND, SILICATE, RARE EARTH COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0902 STEP NO--UR/0363/70/006/004/0766/0772

CIRC ACCESSION NO--AP0131488

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131488

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IR ABSORPTION SPECTRA OF GERMANATES OF THE COMPN. 4LN SUB2 O SUB3 .9GEO SUB2, LN SUB2 O SUB3 .GEO SUB2, AND 2LN SUB2 O SUB3 .GEO SUB2 WERE INVESTIGATED. COMPDS. OF THE COMPN. 7LN SUB2 O SUB3 .9GEO SUB2 AND 2 STRUCTURAL TYPES OF COMPDS. OF THE COMPN. LN SUB2 O SUB3 .GEO SUB2 ARE SIMILAR IN CRYSTAL STRUCTURE TO THE CORRESPONDING SILICATES. THE STABILITY OF THESE COMPDS. WERE EXAMD. AS A FUNCTION OF THE TEMP. AND RADIUS OF THE CATION. IN COMPARISON TO THE CORRESPONDING SILICATES, THE STABILITY OF THE GERMANATES DECREASES WITH DECREASING CONCN. OF GEO SUB2. ANAL. OF IR SPECTRA FOR COMPDS. OF THE COMPN. 2LN SUB2 O SUB3 .GEO SUB2 LEAD TO THE STRUCTURAL FORMULA LN SUB4 (GEO SUB4) O SUB4, AND TO THE IDENTIFICATION OF 2 TYPES OF CRYST. STRUCTURE. FACILITY: INST. KHIM. SILIKAT. IM. GREBENSHCHIKOVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC 019.941

BONDAR', I. I., "Kiyevgeologiya" Trust, and POLKANOV, YU. A., Institute of Mineral Resources

"Review of a Book by Gurvich, S. I., and Bolotov, A. M., Entitled: Titanium-Zirconium Placer Deposits of the Russian Platform and Prospecting Problems"

Moscow, Razvedka i Okhrana Nedr, No 7, Jul 70, pp 63-64

Abstract: The monograph consists of an introduction, five chapters, and a conclusion, and contains illustrations, tables, and a bibliography. The titanium-zirconium placer deposits are considered to be a peculiar type of placers with specific conditions of formation and material composition. The first chapter deals with basic principles of formation of titanium-zirconium placers depending on different geological, tectonic, and other natural factors; the second discusses the characteristic of the basic provinces of complex placers, which developed during different-age deposits -- from the Pre-Cambrian to Quarternary period; the third chapter considers the material composition of complex placers, presents a detailed description of rare-metal and titanium

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USSR

BONDAR", I. I., et al., Razvedka i Okhrana Nedr, No 7, Jul 70, pp 63-64

minerals, and also deals with the characteristics of accompanying non-ore minerals, which, in many instances, are of practical interest; the fourth chapter dwells on an analysis of the possible appearance of titanium-zirconium placers in regions of the platform; the fifth considers the methods of prediction, prospecting, sampling, and preliminary valuation of complex placer deposits.

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BONDAR', I.M.

JPRS 59661

31 July 1973

(5)

AUTOMATIC PYROMETER FOR MEASURING THE TRUE TEMPERATURE OF METALS ON THE BASIS OF RADIATION

[Article by D. Ye. Bondar', V. V. Gribkin, I. M. Bondar', Yu. G. Shishlin, G. F. Mirzabekov, Russian, pp 339-343, no further information available]

The most important problem in the pyrometry of radiation is the measurement of the temperature of a body on the basis of radiation when the radiating capacity of the body changes during measurement.

We know that the solution to this problem is subject to difficulties of a theoretical nature and the only success that has been achieved thus far in solving it has involved radiators whose surfaces exhibit diffuse or mirror reflection that obeys the Lambert law. In these cases, the missing information on radiating capacity is obtained from the additional flux of radiant energy from a lateral source, reflected by the surface of the radiator [1,2]. Polarization of the radiation from a metallic mirror was used in [3,4] to obtain the missing information.

It has been shown [5] that within the limits of validity of the methods of pyrometry on the basis of the relative distribution of spectral energy density of thermal radiation. However, the method can only be used at a relatively low temperature range. It has also been shown [6,7] that there are several new possibilities of measuring the true temperature with counting radiating capacity, based on acquisition of additional information obtained directly from the flux of polychromatic radiation and on the basis of a new form of distribution of spectral density of Wien-Planck radiation [8,9].

It has been shown in these papers that although the values of the true temperature and radiating capacity cannot be determined directly from the value of the fluxes of intrinsic radiation, the view which is widely held in optical pyrometry concerning the impossibility of estimating separately from temperature the influence of the radiating capacity on the results of measurements of the flux of the temperature radiation itself is not always valid.

USSR

UDC 621.314.61

KULIKOV, A.A., KOSTIN, N.A., BERNAT, R.K., BONDARI, K.I.

"Reversable Thyristor Converter For Galvanizing Electric And Diesel Locomotive Parts By The Method Of Reversed Current"

Materialy Yubileyn. nauchno-tekhn. konferentsii Dnepropetr. in-ta inzh. zh.-d.transp. (Materials Of The Jubilee Scientific-Technical Conference Of The Dnepropetrovsk Institute Of Railroad Transportation Engineers), Dnepropetrovsk, 1970, pp 67-68 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B442)

Translation: A single-phase two half-cycle rectifier circuit lies at the base of the converter. The thyristors are phase controlled by the phase shifter bridge method and an amplifier using transistors, which is simultaneously a generator of control pulses. A multivibrator is used to obtain the reversal current, the duration of the output pulses of which determines the flow time of the forward and reverse currents. A.T.

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1/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--COMPARISON OF THE CHEMICAL COMPOSITION OF LUNAR SURFACE MATERIAL DETERMINED BY RADIOASTRONOMICAL OBSERVATIONS WITH THE RESULTS OF

AUTHOR-(03)-BONDAR, L.N., ZELINSKAIA, M.R., STREZHNEVA, K.M.

COUNTRY OF INFO--USSR, UNITED STATES

B

SOURCE--GOR'KOVSKII GOSUDARSTVENNYI UNIVERSITET, GORKI, USSR, INTERNATIONAL UNION OF RADIO SCIENCE, SYMPOSIUM ON PLANETARY ATMOSPHERES

DATE PUBLISHED----FEB70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS, SPACE TECHNOLOGY, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--LUNAR SURFACE, CHEMICAL COMPOSITION, RADIO ASTRONOMY, ARTIFICIAL EARTH SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2190 STEP NO--FR/0000/70/005/000/0247/025I

CIRC ACCESSION NO--AP0125770

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125770

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPARISON OF THE RESULTS OF THE CHEMICAL ANALYSIS OF THE LUNAR SURFACE MATERIAL OBTAINED BY SURVEYOR WITH THAT BASED ON THE DATA OF RADIO ASTRONOMICAL INVESTIGATIONS OF THE ELECTROMAGNETIC PROPERTIES OF THE LUNAR MATERIAL. A NEW METHOD OF DETERMINING THE CHEMICAL COMPOSITION OF LUNAR ROCKS BY COMPARING THE VALUE OF THE MATERIAL LOSS ANGLE AT THE CENTIMETER WAVELENGTH WITH THAT FOUND FOR TERRESTRIAL ROCKS IS PROPOSED, INTRODUCING THE SPECIFIC TANGENT OF THE LOSS ANGLE AS AN INVARIANT FOR THE COMPARISON. THE APPLICATION OF THIS METHOD IS DESCRIBED, AND THE RESULTS ARE PLOTTED GRAPHICALLY AND DISCUSSED. IT IS SHOWN THAT THE DEPENDENCE OF THE SPECIFIC TANGENT OF THE LOSS ANGLE ON SIO2 IS QUITE SUFFICIENT TO FIND THE MEAN CHEMICAL COMPOSITION FROM THE VARIATIONAL DIAGRAM AFTER THE DETERMINATION OF THE SIO2 CONCENTRATION, THAT THE DIFFERENCE IN THE ANALYSIS USING THE DIAGRAMS FOR THE INTRUSIVE AND EFFUSIVE ROCKS IS INSIGNIFICANT, AND THAT THE METHOD PROPOSED MAKES IT POSSIBLE TO DETERMINE MORE PRECISELY THE CONCENTRATION OF SIO2 AND AL2O3, AS WELL AS K2O, NA2O, AND FE2O3.

UNCLASSIFIED

USSR

UDC 621.787.4:621.921.34:539.432

YATSENKO, V. K., KORENEVSKIY, YE. YA., and BONDAR', M. P. Machine-Building Institute imeni V. Ya. Chubar'

"The Influence of Diamond Smoothing Upon the Surface Quality and Fatigue Strength of Steel EI961"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 105-108

Abstract: The article deals with the influence of grinding, polishing and diamond smoothing upon the surface quality and fatigue strength of steel EI961 (Kh12N2VMF). It is shown that diamond smoothing is accompanied by the formation of a high degree of surface finish and a favorable microrelief, increases the depth and degree of cold hardening, and imparts compressive residual stresses to the surface layer. This considerably increases the fatigue strength of the material in comparison to that obtained by grinding and polishing. The obtained research results demonstrate the expediency of using diamond smoothing for the final machining of shafts made of steel EI961 after grinding. It is thereby possible to replace labor-intensive grinding and polishing without diminishing the necessary operational properties of the parts.

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AA0040628

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-76

B

234642 PLASTIC COMPONENT PRESS MOULD comprises a split case 1 with a runner and a demountable shaped cavity 2 made of rubber with a slit 3. The cavity is taken out from the carcass when the poured plastic is solidified, and is opened up along the slit.

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AUTHORS: Beylin, A. M.; Reynsburg, A. M.; Bondar', M. Yu.; Ripman, D. M.; Bakunin, V. A.; and Golovkov, G. V.

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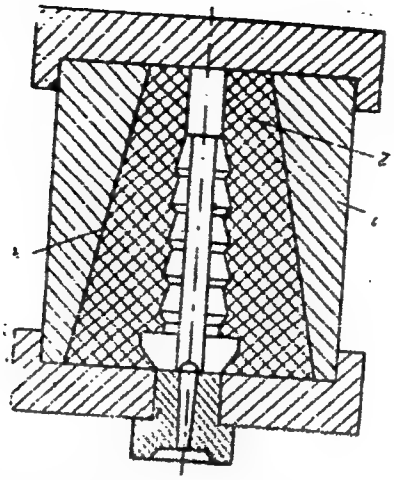
19750185

AA0040628



27.12.65. as 1045751/23-5, BEILIN, A.M. et al.
(26.6.69) Bul. 4/10.1.69. Class 39a^2 Int. Cl.
B 29c.

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19750186

BONDAR', N. I.

Coke Chemical Ind.

1/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYST FOR METHANOL SYNTHESIS -U-

AUTHOR-(04)-SUSHCHAYA, L.E., BONDAR, P.G., GERNET, D.V., LELEKA, V.E.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,355

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBREZTSY, TOVARNYE ZNAKI, 1970 47

DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHANOL, CATALYTIC ORGANIC SYNTHESIS, CHEMICAL PATENT, ZINC OXIDE, CHROMIUM OXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0846 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0136280

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0136280
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE CATALYST, CONSISTING OF ZNO AND CRO, CONTAINS NH SUB4 TUNGSTATE, NH SUB4 MOLYBDATE, AND URANYL NITRATE THAN CAN BE BROKEN DOWN EASILY TO THE CORRESPONDING OXIDES, AND WHICH WEIGH 0.001-2.0 WT. PERCENT (PREFERABLY 0.001-0.1 WT. PERCENT) OF THE CORRESPONDING OXIDE.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFICACY AND MECHANISM OF ACTION OF ANABOLYTIC STEROIDS IN DIABETIC ANGIOPATHIES -U-

AUTHOR-(05)-YEFIMOV, A.S., LIMANSKAYA, G.V., LITVINENKO, A.F., LAPKO, L.I., BODNAR, P.N.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 81-85

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIABETES-MELLITUS, BLOOD VESSEL, EYE, ADRENAL GLAND, CARBOHYDRATE METABOLISM, LIPID METABOLISM, MINERAL, RETINA, ATHEROSCLEROSIS, HORMONE, PROTEIN, BLOOD SERUM, BLOOD PLASMA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1889 STEP NO--UR/0504/70/042/006/0081/0085

CIRC ACCESSION NO--AP0129245

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0129245

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO EVALUATE THE IMMEDIATE RESULTS OF MONTHLY USE OF NEROBOL (IN THE DOSE OF 10 MG DAILY) IN 106 PATIENTS WITH DIABETES MELLUTUS COMPLICATED IN 49 PATIENTS WITH MACRO AND 42, WITH MICROANGIOPATHIES THE AUTHORS STUDIED IN DYNAMICS THE INDICES OF CLINICAL SYMPTOMATICS, SPHIGMOGRAPHY OF THE LEG VESSELS, OPTHALMOSCOPY OF THE EYE FUNDUS VESSELS, THE FUNCTIONAL CONDITION OF THE ADRENALS AND SOME ASPECTS OF CARBOHYDRATE, FAT AND MINERAL METABOLISM. THE POSITIVE CLINICAL EFFECT WAS OBSERVED IN THE MAJORITY OF PATIENTS (IN 34 OUT OF 39) WITH OBLITERATING ATHEROSCLEROSIS AND ONLY IN 5 OUT OF 42 PATIENTS WITH RETINOPATHY. A FAVOURABLE EFFECT OF NEROBOL ON SOME METABOLIC AND HORMONAL DISORDERS EXPRESSED ITSELF BY A COMPARATIVE INCREASE OF ALBUMIN SHARE IN THE PROTEIN SPECTRUM OF THE BLOOD SERUM, BY INCREASED CONCENTRATION OF INTRACELLULAR POTASSIUM, BY A DROP OF THE 11 OXICORTICOSTEROID LEVEL IN THE BLOOD PLASMA. NO SUBSTANTIAL CHANGES ON THE PART OF THE LIPID METABOLISM WAS MARKED. TEH PRELIMINARY RESULTS PROVE THE EXPEDIENCY OF USING NEROBOL AS A MEANS OF PATHOGENIC TREATMENT OF DIABETIC ANGIOPATHY. FACILITY: KLINICHESKIY OTDEL KIYEVSKOGO INSTITUTA ENDOKRINOLOGII I OBMENA VESHCHESTV.

UNCLASSIFIED

USSR

BONDAR', V. D.

"Generalization of Kolosov-Muskhelishvili Formula for Geometrically Nonlinear Elasticity"

Dinamika Sploshn. Sredy. Vyp. 7 [Dynamics of Continuous Media, No 7 -- Collection of Works], Novosibirsk, 1971, pp 146-153, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 V105 by N. A. Shul'ga).

Translation: Displacements and stresses in the planar problem are presented for a particular type of nonlinear elasticity by means of two analytic functions $\phi(\xi)$ and $\psi(\xi)$ (elongation-shear and angle of rotation are slight in comparison to unity, but components of linear deformation tensor are of the same order with the squares of the angles of rotation). Here ξ is a complex LaGrange coordinate. The boundary conditions lead to functional equations for determination of these functions: If the displacements are fixed at the boundary

$$(3-4\nu)\varphi(t)+t\overline{\varphi'}(\bar{t})-\overline{\psi}(\bar{t})+$$
$$+\frac{1-\nu}{2\mu}\left[\int\varphi'^2(t)\,dt-2\varphi(t)\overline{\varphi'}(\bar{t})+t\overline{\varphi'}^2(t)\right]=2\mu g(s)$$

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BONDAR', V. D., Dinamike Sploshn. Spery. Vyp. 7, Novosibirsk, 1971, pp 146-153.

if the stresses are fixed at the boundary

$$\varphi(t)+t\overline{\varphi'}(\overline{t})+\overline{\psi}(t)-\frac{1-\nu}{2\mu}\left[\int\varphi'^{2}(t)\,dt-\right.$$
$$\left.-2\varphi(t)\,\overline{\varphi'}(\overline{t})+t\overline{\varphi'^{2}}(\overline{t})\right]=i\int_{0}^{s}p(s)\,ds+C$$

where s is the length of an arc of contour L_ζ, t = t(s) is the affix of a point on L_ζ; g(s), p(s) are fixed functions. 5 Biblio. Refs.

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USSR

UDC 577.1:615.7/9

BATRAK, G. YE., BONDAR', V. K.

"Role of the Autonomic Nervous System in the Pathogenesis of Morphine Intoxication"

Farmakol. i toksikologiya. Resp. mezhved. sb. (Pharmacology and Toxicology. Republic Interdepartmental Collection of Works), 1970, No 5, pp 5-8 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1768)

Translation: Treatment of dogs with lethal doses of morphine resulted in two periods of intoxication - a period of motor calm, sleep, and slowing of bioelectrical activity of the cerebral cortex, and then a period of alertness, convulsions, and tachycardia. Disruption of the autonomic balance in the direction of vago- or sympathicotonia caused a lengthening of the first period or an intensification of the manifestations of the second period, respectively.

Resume

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USSR

UDC 577.1:615.7/9

BATRAK, G. YE., BONDAR', V. K.

"Role of the Autonomic Nervous System in the Pathogenesis of Morphine Intoxication"

Farmakol. i toksikologiya. Resp. mezhved. sb. (Pharmacology and Toxicology. Republic Interdepartmental Collection of Works), 1970, No 5, pp 5-8 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1768)

Translation: Treatment of dogs with lethal doses of morphine resulted in two periods of intoxication - a period of motor calm, sleep, and slowing of bioelectrical activity of the cerebral cortex, and then a period of alertness, convulsions, and tachycardia. Disruption of the autonomic balance in the direction of vago- or sympathicotonia caused a lengthening of the first period or an intensification of the manifestations of the second period, respectively.

Resume

1/1

USSR

UDC 621.791.011:669.15-194

BRAUN, M. P., VINOKUR, B. B., BONDAR', V. T., Institute of Casting Problems, Academy of Sciences Ukrainian SSR, GELLER, A. L., Donets Scientific Research Institute of Ferrous Metallurgy, KONDRASHEV, A. I., PILYUSHENKO, V. L., TKACHEV, V. V., New Kramatorsk Machinery Plant imeni V. I. Lenin

"Strength and Embrittlement of Welded 25Kh2GMT Steel in Large Cross Sections"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 18-22

Abstract: A study was made of the tendency of 25Kh2GMT steel toward temper brittleness, cold brittleness, and notch sensitivity in various parts of the cross section of a large sample 1,000 mm in diameter. The relation of these characteristics to the metallurgical nature and structural conversions in the steel during heat treatment of large products was established. The tests showed the possibility of safe utilization of 25Kh2GMT steel in large cross sections.

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USSR

UDC 621.357.7:669.15'26'779(088.8)

BONDAR', V. V. and POTAPOV, I. I.

"Electrolytic Plating with Chromium Alloys"

USSR Author's Certificate No 325276, Filed 8 Jun 70, Published 25 Feb 72 (from Referativnyy Zhurnal -- Khimiya, No 21(II), 1972, Abstract No 21L311P)

Translation: The patented method differs from other by the presence of ammonium hypophosphite in the known electrolyte containing $Cr_2(SO_4)_3$ and $FeSO_4$ and is used for production of the corrosion-resistant, protective and decorative coatings of Cr-Fe-P magnetic alloys. Example: light, shiny coatings containing 79% Fe, 6-8% Cr, 12-15% P, with a coersive force of $\leq$ 1 e were prepared in an electrolyte (in g/liter) consisting of 200 $Cr_2(SO_4)_3 \cdot 5H_2O$, 75 $FeSO_4 \cdot 7H_2O$, 10 ammonium hypophosphite, at pH 1-2, temp. 20-60°C, and D_c 5-15 a/dm^2, with VT_k [expansion unknown] $\sim$ 5-7%.

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1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ELECTRODEPOSITION OF IRON ALLOYS -U-

AUTHOR-(04)-SIDELNIKOV, V.K., YAGUBETS, A.N., BONDAR, V.V., MELNIKOVA, M.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,099

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--10FEB70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, ELECTROLYTE, METAL DEPOSITION, IRON ALLOY, COBALT IRON ALLOY, PHOSPHORUS ALLOY, ELECTRODEPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/1328 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132093

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AA0132093 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN FE,CO,P ALLOY IS DEPOSITED AT 20-5 A-DM PRIME2, PH 0.4-0.8, AND 50-60DEGREES FROM AN ELECTROLYTE CONTG. FECL SUB2 450-600, NA HYPOPHOSPHITE 10-15, AND COCL SUB2 5-15 G-L. FACILITY: INSTITUT PRIKLADNOY FIZIKI AN MOLDAVSKOY SSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ANTIBODIES AND TRACE ELEMENTS OF THE BLOOD AND IMMUNOGLOBULINS IN CHRONIC DISEASES OF THE LIVER -U-

AUTHOR-(05)-BONDAR, Z.A., ZOLOTNITSKAYA, R.P., UZYANOVA, V.L., BELOKRINITSKIY, O.B., KIRILCHENKO, A.M.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 18-23

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--INTERNAL ORGAN DISEASE, LIVER, BLOOD CHEMISTRY, TRACE ELEMENT, ANTIBODY, GLOBULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0815 STEP NO--UR/0404/70/042/003/0318/0323

CIRC ACCESSION NO--AP0102777

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--02OCT70
CIRC ACCESSION NO--AP0102777
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS CONDUCT IMMUNOLOGICAL INVESTIGATIONS IN 110 PATIENTS WITH VARIOUS CHRONIC DISEASES OF THE LIVER COMPARING THEM WITH CLINICAL AND HEMATOLOGICAL DATA. IT WAS FOUND THAT IN 47.2PERCENT OF THE PATIENTS ANTIBODIES TO TRACE ELEMENTS WERE DETERMINED, MOSTLY ERYTHROCYTIC AND THROMBOCYTIC. THERE WAS FOUND A CERTAIN CORRELATION BETWEEN POSITIVE REACTIONS TO ANTIBODIES AND CYTOPENIA, DEGREE OF SPLENOMEGALY AND CHANGES IN THE AMOUNT OF IMMUNOGLOBULINS. THE GREATEST IMMUNOLOGICAL CHANGES WERE OBSERVED IN PATIENTS WITH CIRRHOSIS OF THE LIVER. THE SPLEEN PLAYED A GREAT ROLE IN THE IMMUNE CONFLICT. A SPECIAL IMPORTANCE SHOULD BE ATTACHED TO THE IMMUNE MECHANISM IN THE COMPLICATED GENESIS OF HYPERSPLENISM IN CHRONIC DISEASES OF THE LIVER, HOWEVER THE ASSESSMENT OF IMMUNOLOGICAL DATA SHOULD BE DONE WITH CAUTION IN VIEW OF NONSPECIFIC POSITIVE REACTIONS.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002200420013-7"

Acc. Nr.: AP0029815 Ref. Code: UR 0475

PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 1, pp69-71

STATE OF THE PANCREAS IN LIVER CIRRHOSIS

Z. A. Bondar, S. A. Tuzhilin, V. M. Makhov, N. D. Belousova and A. I. Saluenya (Moscow)

In 80 patients with liver cirrhosis examinations revealed a reduction of the pancreatic secretory function during secretin and pancreasimine stimulation. A study with labeled lipids revealed steatorrhoea. During the active phase of liver cirrhosis exacerbation of the pancreatic process was found. Examination of 29 autopsy cases of liver cirrhosis showed in all instances different changes in the pancreas — from periductular and inter- and interalobular fibrosis to phenomena of necrosis and even hemorrhages in the parenchyma of the gland and adipose tissue.

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REEL/FRAME
19681501

1/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--A STUDY OF THE INITIAL STAGES OF SUCROSE DECOMPOSITION BY THE STRAINS OF CLADOSPORIUM SP -U-

AUTHOR-(03)-NOVIKOVA, S.I., BONDARCHUK, A.A., VASILENKO, G.D.

COUNTRY OF INFO--USSR

SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 35-41

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SUCROSE, SACCHARIDE, HYDROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0483 STEP NO--UR/0220/70/039/001/0035/0041

CIRC ACCESSION NO--AP0117719

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0117719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUCROSE PHOSPHOROLYSIS WAS NOT FOUND DURING THE INITIAL STAGES OF SUCROSE DECOMPOSITION BY CLADOSPORIUM SP., STRAINS 1622, AND 5143. THE STRAINS DECOMPOSED SUCROSE BY HYDROLYSIS FOLLOWED WITH TRANSHEXOZILATION RESULTING IN OLIGOSACCHARIDES WITH DIFFERENT VALUES OF R SUBGL. THESE OLIGOSACCHARIDES WERE PROVED TO BE MAINLY TRANSFRUCTOZILATION PRODUCTS. HYDROLYTIC AND TRANSHEXOSILASE ACTIVITIES VARY IN DIFFERENT STRAINS AND DEPEND ON THE CULTURAL AGE.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE CENTRAL REGULATION OF HUMAN VEGATATIVE FUNCTIONS -U-

AUTHOR-(03)-BONDARCHUK, A.N., NIKITINA, L.I., SHMATKOV, YU.V.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 6, PP 852-857

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE PROCESS OF STEROTAXICAL DIAGNOSTIC AND THERAPEUTICAL MEASURES IN PATIENTS WITH HYPERKINESES, THE AUTHORS ACCOMPLISHED A COMPREHENSIVE STUDY OF THE VEGRYATIVE AND CARDIOVASCULAR SEMIOLOGY OF SOME DEEP BRAIN STRUCTRES. THESE DATA TESTIFY TO A DIFFERENT DEGREE OF INVOLVEMENT OF THE SUBCORTICAL STRUCTURES AND THALAMIC NUCLEI IN THE MECHANISMS OF CENTRAL REGULATION OF THE VEGETAIVE FUNCTIONS. BESIDES THE THEORETICAL SIGNIFICANCE FOR THE PHYSIOLOGY OF DEPTH HUMAN BRAIN STRUCTURES, THE OBTAINED DATA ARE OF INTEREST FOR THE SELECTION OF "NUCLEARTARGETS" IN SURGICAL TREATMENT OF THE DIFFERENT EXTRAPYRAMIDAL AND OTHER DISEASES ACCORDING TO THE STEROTAXICAL METHOD. FACILITY: INSTITUTA EKSPERIMENTAL'NOY MEDITSINY, AMN SSSR, LENINGRAD.

UNCLASSIFIED

USSR

UDC: 621.313.522:538.4

BONDARCHUK, A. P., GARBUZOV, V. N., ZASLAVSKIY, B. I., OSERED'KO, Yu. S., KHANZHINA, Ye. I., YANTOVSKIY, Ye. I.

"An Open-Cycle MHD Electric Power Plant Based on Natural Gas With Chemical Regeneration of Exhaust-Gas Heat"

Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii /Heat Engineering Problem of the Direct Conversion of Energy -- Collection of Works/, No 4, Kiev, Nauk. Dumka Press, 1973, pp 10-19 (Translated from Referativnyy Zhurnal Turbostroyeniye, No 11, 1973, Abstract No 11.49.153)

Translation: Results are presented from analysis of various factors: magnetic induction B, quantity of additive, end effects and air heating temperature on the thermodynamic effectiveness η_{st} of an MHD electric power plant (MHDEPP) with a frame channel of the MHD generator and a steam turbine and thermochemical processing of the fuel (water conversion) using natural gas as the fuel. Calculations of the MHD power plant are presented for a consumption of combustion products of 2000 kg/sec using two types of magnetic system (MS): nonsuperconducting and superconducting. For the nonsuperconducting MS, η_{st} of the MHDEPP changes within limits of 50-49% and 51-52% as B is changed from 5 to

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BONDARCHUK, A. P., et al., Teplotekhn. Probl. Pryamogo Preobrazovaniya Energii, No 4, 1973, pp 10-19

6.5 T at air temperatures of 1100 and 1500°K respectively. For a superconducting MS with B=6 T with a power plant capacity of 2500 Mw, η_{st} increases by 3.5-6.5% as air temperature is increased from 1100 to 1500°K. It is established that the presence of end sectors causes an increase in total length of the MHD generator and an increase in losses to cooling, reducing η_{st}. Injection of K_2CO_3 with 1 wt. % K decreases η_{st} by 1.5%. Problems of water conversion of methane are studied. It is concluded that the MHD power plant discussed is quite promising. 5 Figures; 13 Biblio. Refs. M. I. Osipov

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USSR

UDC: 621.319.4(088.8)

BELYAKHIN, I. K., PARFENOV, B. F., BONDARCHUK, G. M., PROKOP'YEV, L. N.

"A Mandrel for Winding Mansbridge Capacitor Sections"

USSR Author's Certificate No 275231, filed 15 Nov 68, published 25 Nov 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V378 P)

Translation: This Author's Certificate introduces a mandrel for winding sections of self-sealing capacitors. The device contains a cylindrical housing with a longitudinal slot accommodating a long needle for holding the ends of the ribbons to be wound on the mandrel. As a distinguishing feature of the mandrel, removal of the finished sections from the device is simplified by forming the mandrel from two hollow interconnected half--cylinders with tapered inner surface encompassing a tapered rod with a spring on one end which presses the half-cylinders against a support set on the rod.

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USSR

UDC: 621.319.4(088.8)

BELYAKHIN, I. K., BONDARCHUK, G. M., NIKOLAYEV, Yu. V., ZHUK, V. N.

"A Device for Winding the Sections of Capacitors"

USSR Author's Certificate No 266956, filed 9 Aug 68, published 8 Jul 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V379 P)

Translation: This Author's Certificate introduces a device for winding capacitor sections. The device contains a mandrel-turning mechanism, tape-dressing and winding mechanisms equipped with bobbins, and a braking mechanism. As a distinguishing feature of the patent, the device is designed to reduce the number of tears and "run-off" of the wound tape by fitting each of the above-mentioned winding mechanisms with a spiral band spring with one end fastened to the flange support of the winding bobbin, and the other end fastened to the braking pulley support. The flanged sleeve and braking pulley are fitted with stops which interact with each other within the limits of total uncoiling of the spring.

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BONDARCHUK, L.L.

"Scientific Colloquim of the White Sea Biological Station of Moscow University (8-9 August 1969)"

Moscow, Vestnik Moskovskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

Translation: The Scientific colloquium of the White Sea Biological Station of Moscow University (MSU), organized by the management of the Station and the Soviet of Young Scientists at the Soil Biology Faculty of Moscow State University, made the participants of the sessions familiar with principal directions of scientific work and some of the results obtained at the White Sea Biological Station (WBS) since its inception 30 years ago. A total of 65 members attended the colloquium, at which 16 reports were presented. Biologists of various specialties participated (associates, fellows, and students of the chairs of Invertebrate Zoology, Hydrobiology, Vertebrate Zoology, Histology, Enzymology, Higher Plants and other chairs of the Soil Biology Faculty of Moscow State University, the Chair of Biophysics in the Physics Faculty of Moscow State University, the Oceanology Chair of the Geography Faculty of Moscow State University, Collaborators from the Institute of Oceanology, Academy of Sciences USSR, the Institute of Arctic Geology, Kazan' University students of biology and others). Academician L.A. Zyenkyevich opened the colloquium with introductory remarks, in which he gave ahistory of

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BONDARCHUK, L.L., Vestnik Moskovoskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

the formation and development of the WBS-MSU, and noted important contributions of WBS Director N. A. Pmertsov in establishing the scientific-technical basis for the station. L.A. Zenkyevich called on ocean biologists of various specialties to increase their collaborative efforts at the WBS if possible. The dean of the Soil Biology Faculty, Prof. N. P. Naumov, in his introductory speech noted the great enthusiasm of the group working at the biostation. Good features of life at WBS are its businesslike atmosphere and real companionship, which aid in a wide scope of scientific studies, and great construction undertakings. N. A. Pertsov, Director of the Biostation, reported on the principal directions of the work carried out at the WBS. During its 30 years of existence, more than 7,000 students and workers of various scientific research and academic institutions spent some time at the WBS. A total of 12 doctoral theses, 60 diploma dissertations, and dozens of student term papers were prepared. Three collections of the papers of the biostation workers have been published. Currently the station prides itself on sufficiently well-equipped laboratories, and a fleet permitting high-caliber scientific hydrobiological studies to be carried out. The newly erected aquarium laboratory shell permits studies on inhabitants of not only the White Sea, but other northern seas. The biological properties of the White Sea make it possible to approach it as a huge natural laboratory, in which wide-range

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BONDARCHUK, L.L., Vestnik Moskovoskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

biological studies may be conducted. Introduction of the aquarium shell will result in intensified studies in the field of experimental physiology. Annually the biostation hosts student biologists from colleges of Moscow, Leningrad, Kazan', and other cities for their practical work. Typically, this student practice is not just a teaching vehicle, but results in considerable input to the scientific studies at the WBS. At present inventory of flora and fauna of the White Sea is being made. It is necessary to compile locators, textbooks, and systematic handbooks containing complete information on the composition of animal and plant species of the White Sea. A group of workers and students at the Oceanology Chair of the Geography Faculty of MGU studies the hydrological cycles of the biostation's shore regions. The leader of this group, V.L. Lebedev reported considerable variations in hydrological indicators, especially temperature and salinity in the WBS region. For example, at different shore locations, the concurrently determined temperature of surface water may differ by as much as 4°C. The speaker described also the velocity of low tide-high tide currents, and amplitudes of low tide - high tides. The report on studies of biological productivity in the White Sea, carried out by a group of the Chair of Hydrobiology workers at MGU under the direction of V.D. Fedorov, was very interesting. These studies are aimed at determination of relationships, between factors for example the effect of light on plankton at different concentrations of biogenic materials in water. Design of experiments

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BONDARCHUK, L.L., Vestnik Moskovoskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

is extremely important in this respect. Phytobenthos is an important factor in the primary production of the sea. V.B. Vozzhinska reported that in the Kandalaksha Bay there are about 140 types of macrophytes, of which about a dozen are the chief producers of the bulk of plants. On some shore segments, the biomass of seaweed and laminaria weights up to dozens of kilos per 1 m^2. Quantitative search for diatomic benthos, carried out by L.L. Bondarchuk, showed that they are abundant exclusively in the shore zone (to the depth of 20-25 m). For example, at the levels of the lower littoral and upper sub-littoral, about 2 million cells may be found per 1 cm^2 of the ground surface. N.Ya. Artemchuk reported interesting data on the species composition and quantitative survey of sea fungi in shore waters around the biostation. These organisms have very diverse composition; the penicillin and Mucorales fungi predominate, and the number of aspergillus fungi is limited (in contrast to the Black Sea). The fungal flora is most numerous in the ground surface layer all along the shore. Workers and students at the Chair of Cytology and Histology of MGU are conducting cytological studies of the nervous systems of some invertebrates. It was determined that the general plan of the neuron structure of polychaetes is equivalent to that of the vertebrates; tigroid substances and neurofibrialla are present, and the nuclei of these cells are characterised by polyploidy. Yu. M. Frolov reported that 53 types of free-living nematoda (basically of the arctic-borealis type), were observed around

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BONDARCHUK, L.L., Vestnik Moskovoskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

the biostation. Nematodes are very numerous here. Under 1 m^2 of the littoral, about 1.5 million species of these types may be found. An ecological group of nematoda was discovered living on algae. Ye.D. Val'ter reported on the biology of the nematode Contracaecum aduncum, a parasite of White Sea fish. Based on spontaneous and experimental infection of various animals, 12 new hosts for C. aduncum were discovered. T.A. Bek reported on some biological properties (including nutritional habits) of gammarus cructaceans from Velikala Salma region. Detritus is the most important nutrient of gammarus, followed by various algae. It was calculated that in an area of 1 km^2 of littoral zone, gammarus may digest about 8 tons of organic material during a season. N.M. Kalyakina studied the reproductive biology of lugworms. In their 11 or 12th month, lugworms are capable of reproduction, but the main burden in propagation of the population is carried out by 2-3 year-old specimens. It was not possible to categorize the lugworms by weight or by the length of the chaetophorous portion. The White Sea population of lugworms emits sexual products for 3 weeks. The White Sea population of lugworms reproduces in July, and not during the cold autumn sea temperatures, as is the case with sandworms in Britain. The colloquium concluded with a discussion of papers. It was noted that the important aspects of the work at the biostation concerned a combination of field studies with laboratory experiments, and the use of

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BONDARCHUK,L.L., Vestnik Moskovoskogo Universiteta, No 1, Jan/Feb 70, pp 123-125

mathematical analytical methods. It was suggested that the biostation carry out year-around studies. The academician L.A. Zenkevich stressed the fact that the flora and fauna of the White Sea represent a sharply delineated biogeocenotic system, in which the number of species is relatively small and therefore suited to determination of the parameters of the biogeocenotic system, which only be done by detailed study of the biology of individual species.

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USSR

UDC 615.372:576.851.551].033.81.018.1

BONDARCHUK, N. G., KRYZHANOVSKIY, G. N., and ROZANOV, A. Ya., Chair of Biochemistry, Odessa University imeni I. I. Mechnikov, and Laboratory of the Pathophysiology of Infection Intoxications, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"The Effect of Natitoxin on Tetanus Toxin Fixation by Subcellular Structures of the Brain"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol 75, No 3, 1973, pp 39-42

Abstract: Experimental findings indicate that purified tetanus toxin labeled with I^{131} is bound by the so-called crude mitochondria fraction of guinea pig brain, which includes mitochondria, synaptosomes, and myelin fragments. The largest portion of the toxin is bound by synaptosomes, a smaller by myelin fragments, and the smallest by mitochondria. Tetanus toxin neutralized by antitoxin is also bound by these structures but to a somewhat lesser extent. No such reduction in fixation occurs when tetanus toxin and antitoxin are added to the crude mitochondria extract simultaneously. The data support the previously advanced hypothesis that the tetanospasmin molecule has separate sites at which fixation to nervous tissue and to antitoxin takes place.
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USSR

UDC 621.385.633:621.376.5

BALYUK, V.S., BONDARENKO, A.A., KOTENKO, YE.G., LESHCHENKO, A.F.

"Thyristorized Modulator Of Control Electrode Of Type M Backward-Wave Tube"

Elektron.tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics),1972, Issue 4, pp 100-101 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9A131)

Translation: The paper describes a simple thyristorized modulator of the control electrode of a Type M backward-wave tube, fulfilled on the basis of semiconductor devices. The distinctive feature of the modulator is the use of a thyristorized relaxator for production of a series of pulses. The output parameters of the modulator are: amplitude of voltage pulse, 1.5--20 kV; duration of series, 1--40 microsec. with the frequency of the pulse sequence, 100--2.5 GHz. Summary.

USSR

UDC 621.375.82

BONDARENKO, A. N., KRIVOSHCHEKOV, G. V., SMIRNOV, V. A.

"Pulsed Sources of Coherent Pumping for Nonlinear Optical Systems"

V sb. Nelineyn. protsessy v optike (Nonlinear Processes in Optics--collection of works), vyp. 2, Novosibirsk, 1972, pp 377-391 (from RZh-Fizika, No 12, Dec 72, Abstract No 12D896)

Translation: A survey was made of the methods of stabilizing and tuning the radiation frequency of solid state lasers used as pumping sources in nonlinear optical systems. A comparative analysis was made of the advantages of using Fabry-Perot interferometers, anisotropic plates, and prism selectors in lasers operating in the free oscillation mode. The complexity of selecting modes in lasers operating in the modulated Q-factor mode as a result of the high magnitude of the amplification was noted. A great deal of attention has been given to the operation of lasers in the modulated Q-factor mode under the effect of a narrow-band, external signal. The bibliography has 26 entries.

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USSR

UDC 621.357.1.035.14:669-492.2

KUKOZ, F. I., VOLOSYUK, YU. M., BONDARENKO, A. V.

"Temporary Changes in a Two-Layer Electrolyzer"

Tr. Novocherkas. politekhn. in-ta (Works of the Novocherkassk Polytechnic Institute), 1971, 239, pp 99-104 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L288)

Translation: A study was made of the temporary changes in a two-layer electrolyzer to obtain very fine metal powder. The upper layer in the baths is a hydrocarbon solution of surface-active substance, and the lower layer is an aqueous solution of the salt of the desired metal. It is demonstrated that during the contact between the organic and aqueous phases in the two-layer bath changes take place in the electrical characteristics of the bath. With an increase in depth of immersion of the cathode in the lower layer of the two-layer bath, beginning with some depth, the cell resistance does not in practice change and does not depend on the area of the cathode immersed in the lower layer. As polarization studies have shown, the polarization is very high on separation of the metals. The high values of the overvoltage are in accordance with the high resistance of the medium near the growing metal crystals. The variation in the resistance with submersion of the cathode below the interface of the layers is connected with variation of

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KUZOZ, F. I., et al., Tr. Novocherkas. politekhn. in-ta, 1971, 239, pp 99-104

the thickness of the part of the upper layer pulled by the cathode below the level of the interface and with the independence of the number of simultaneously growing crystals with respect to the magnitude of the submerged surface of the cathode. The decrease in overvoltage with contact time of the layers is in accordance with the decrease in the specific resistance of the solution of the upper layer of the bath.

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USSR

UDC 621.357.1.035.14

KUKOZ, F. I., VOLOSYUK, YU. M., BONDARENKO, A. V.

"Mechanism of the Heterogeneous Reaction in a Two-Layer Electrolyzer"

Tr. Novocherkas. politekhn. in-ta (Works of the Novocherkassk Polytechnic Institute), 1971, 239, pp 105-108 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L289)

Translation: A study was made of the effect of various conditions of electrolysis in a two-layer electrolyzer on the mechanism of the cathode reaction. The upper layer in the bath is a 0.35% solution of oleic acid in toluene, and the lower layer is a solution of $FeCl_2$ with a concentration of 30 grams/liter. A disc cathode was immersed in the upper layer, it was rotated and lowered so that the edge of the disc was approximately 0.5 mm from the interface of the liquids. Under these conditions, two paths of formation and growth of the metal powder are possible: a) nucleation and growth of the particles at the liquid-liquid interface in the upper layer without direct contact of them with the cathode; b) nucleation of the particles and further growth both directly on the cathode, and at the liquid interface in the upper layer. Since the growth of the particles directly on the cathode takes place with higher polarization of the cathode and growth of the particles at the liquid interface,

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USSR
KUKOZ, F. I., et al., Tr. Novocherkas. politekhn. in-ta, 1971, 239, pp 105-108

it is possible to assume that the most probable process of formation of the powder in a two-layer electrolyzer is growth of the particles at the liquid interface. The cathode is used to bring the electrons to the reaction zone. The specific nature of its metal and the selective adsorption of the components of the upper layer of the bath probably is a secondary factor.

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USSR

UDC 621.762.001:669.3

KUKOZ, L. A., and BONDARENKO, A. V.

"Dispersed Composition of Copper Powder, Produced by Electrocrystallization With the Use of Acoustic Vibrations"

Tr. Novocherk. politekhn. in-ta (Works of the Novocherkassk Polytechnical Institute), 1970, 208, pp 82-88 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G295)

Translation: A study is made of the composition of electrolytic Cu powder. The process of electrocrystallization is intensified by low-frequency vibrations, which are transferred to the system through a vibrating cathode of toothed profile. The powders produced are subjected to sedimentation analysis on a torsion scale. Within the studied interval of the composition of electrolyte in regard to Cu content (1-4 g/l) the most probable radius of particles, produced by the application of low-frequency vibrations, is 2-4 μ. The most probable radius of the particles of control powder equals 1-2 μ. The specific surface and the coefficient of heterogeneity of the acoustically treated powder are considerably lower than those of the control powder. 3 ill., 3 tables, 5 bibl. entries.

V. Chelnokov

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USSR

UDC 621.762.2:669.3

BONDARENKO, A. V., and BELIKOV, V. V.

"Regulation of Metal Concentration in a Solution During Powder Electrocrystallization"

Tr. Novocherk. politekhn. in-ta (Works of the Novocherkassk Polytechnical Institute), 1970, 203, pp 77-80 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G333)

Translation: A flow chart is worked out for the regulation of Cu concentration in sulfuric acid electrolyte during electrolytic deposition of Cu powder. The presence of the range of allowable concentrations during production of powder and the static nature of the object (electrolyzer) allows utilization of a proportional regulator, which redistribures current between the soluble and insoluble anodes. The setup flow chart ensures a reliable reaction of the required direction onto input signals. 2 ill.

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USSR

UDC 621.762.2:669.3

BONDARENKO, A. V., and KUKOZ, L. A.

"Production of Copper Powders by Electrocrystallization Using Acoustical Oscillations"

Ul'trazvuk. metody intensifik. tekhnol. protsessov [Ultrasonic Methods of Intensifying Technological Processes -- collection of works] (Moscow Institute of Steels and Alloys, 60), Moscow, 1970, pp. 204-207 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G435 by the authors)

Translation: The possibility is studied of producing Cu powders from sulphate electrolytes with various Cu contents using a grooved cathode oscillating at 100 Hz. 1 figure.

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USSR

UDC 621.762.2:669.1

BONDARENKO, A. V., KALMYKOV, Yu. V., KUTNYAKHOVA, V. M., and KLETSKO, G. P.

"Electrocrystallization of Powders of Iron and Alloys of Iron With Cobalt and Nickel Using Acoustical Oscillations"

Ul'trazvuk. metody intensifik. tekhnol. protsessov [Ultrasonic Methods of Intensifying Technological Processes -- collection of works] (Moscow Institute of Steels and Alloys, 60), Moscow, 1970, pp 212-215 (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G436 by the authors)

Translation: Results are presented from a study of the process of precipitation of Fe and its alloys on a grooved cathode oscillating at 100 Hz by electrocrystallization from aqueous sulphate solutions. The possibility of increasing the current density and other parameters during electrolytic powder production is clarified. 1 figure; 2 tables.

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

243794 METALLIC POWDERS are produced by electrolytic deposition on a cathode improved in that the cathode is grooved and is subjected to vibrations, whereby the falling of the powder from the cathode surface is accelerated to cavitation and the rate of deposition is increased due to the agitation of the electrolyte. In an example, copper powder was deposited from an electrolyte containing 1-4g./l. of copper and 150g./l. of H_2SO_4, at 20°C, on a grooved steel cathode preliminarily coated with a 20μ layer of copper. The cathode was vibrated at a frequency of 100 H_2 and an amplitude of 0.8 mm. The deposition rate was 50-100 times greater than in the case when a smooth, stationary cathode was used. The separation of the powder from the cathode and its accumulation on the bottom of the cell were rapid. 9.7.66 as 1089857/22-1 A.V. BONDARENKO et al. S. Ordzhonikidze Novocherkasskii Polytechnical Institute (30.9.69) Bul. 17/14.5.69 Class 31b,40c,12p, Int. Cl. B 22f,C22d,B01k.

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Novocherkasskly Ordena Trudovogo Krasnogo Znameni Politekhnicheskiy Institut im. Sergo Ordzhonikidze

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Nickel

UDC 669.24.492

USSR

BONDARENKO, B. I., PEKACH, V. F., SHAMPO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. P., and GOLGER, S. P.

"Fluidization of Industrial Nickel Powder"

Moscow, Tsvetnyye Metally, No 5, May 70, p 24

Abstract: The results of an experimental determination of the fluidization onset rate of nickel powder containing 5-6% Cu and 3% Fe, with 2010 kg/l bulk density and apparent weight of 5.36 kg/l, for various powder fractions are presented in tabular form, together with data on Reynolds (Re) and Fedorov numbers calculated for each test condition. An equation for determining the first critical rate of fluidization onset is derived on the basis of experimental data.

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USSR

UDC: 669.243.45

SHAMRO, E. A., VYAZ'MIN, O. A., YEVLANOV, S. P., GOLGER, S. P., BONDARENKO, B. I., and PENACH, V. F.

"Reduction Kinetics of Commercial Nickel Oxide in a Fluidized Bed Using Gas Mixtures as Reducing Agents"

Moscow, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

Abstract: Results of laboratory studies are presented on the reduction of sintered nickel oxide in a fluidized bed. The experiments were conducted in quartz reactors, 35-38 mm in diameter, with external electric heating. The degree of reduction of the material was measured by weight differences between the initial and reduced samples. Allowances were made for weight losses related to natural analysis of visual observations of the quality of fluidization and data on the beginning of conglomeration of the material, providing an optimum value of fluidization of $w_{fl} = 2$. The experimental.

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SHAMKO, E. A., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 10-13

results on reducing nickel oxide with hydrogen-carbon monoxide (H_2:CO=1:1) and hydrogen-methane (H_2:CH_4=2:1) mixtures have shown that the reduction capacity of hydrogen-carbon monoxide mixtures depends largely on hydrogen content since hydrogen is chemically more active. In the hydrogen-methane mixture both are fairly active reducing agents. Figures in the original article demonstrate the dependence of the degree of reduction on reduction duration with converted gas at various temperatures and the dependence of the degree of gas utilization on the duration of reduction with hydrogen at various temperatures. The gas utilization efficiency is a linear function of the height of the layer of material being reduced. It was found that the gas utilization efficiency in reduction with converted gas is higher than that with hydrogen.

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USSR

UDC 621.385.63

SHUL'GA, V. G., BONDARENKO, B. N.

"Two-Beam Traveling Wave Tube (EVLBV) in the Large Input Signal Mode. Parameter Effect"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1027-1032

Abstract: A study was made of the parameter effect on the output characteristics of a two-beam traveling wave tube in the nonlinear mode. The nonlinear equations of the two-beam traveling wave tube were formulated previously [V. G. Shul'ga, et al., Nelineynaya teoriya dvukhluchevoy LBV, Khar'kov State University, Khar'kov, Radiotekhnika, No 14, 1969]. Since these equations could not be solved analytically, the large input signal modes were analyzed on the basis of a numerical solution of the equations on the M-220 computer using the Runge-Kutta method. Among the parameters defining the nonlinear mode, the velocity difference h is new by comparison with the ordinary traveling wave tube. The velocity difference parameter has a sharply expressed resonance nature. With an optimal set of the h parameter, the total efficiency of the two-beam traveling wave tube increases noticeably. The dependence of the electron economy η and the amplification factor G for a series of successive values of the asynchrony parameter b is considered. There is a clear maximum of the electron economy in the vicinity of the parameter $b \approx 0.5$, the amplification factor

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SHUL'GA, V. G., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1027-1032

remains relatively small G ≈ 35 decibels and has a tendency to increase monotonically with the asynchrony parameter b. For small values of the flow charge parameter q the effect of the parameter b is similar to its effect in the nonlinear mode of the traveling wave tube. An increase in the parameter q increases the efficiency of the device as a whole. However, beginning with q ≈ ≈ 1.5, a further increase in the space charge parameter is not accompanied by a noise increase in the field amplitude. The amplification parameter C of the two-beam traveling wave tube has the same effect on the economy as in the ordinary traveling wave tube. The input signal level parameter F_0 has a "threshold" effect which is absent in nonlinear processes in the ordinary traveling wave tube.

The velocity difference between the electron beams under defined conditions improves the characteristics of the two-beam traveling wave tube in the large input signal mode. The theoretical value of the electron economy increases (to 75% without losses), the saturation length decreases (it is cut in half by comparison with the ordinary traveling wave tube), the band of amplified frequencies is broadened (the band defined by the asynchrony parameter b). The nature of the effect of the parameters on the output characteristics in the investigated modes approaches the effect of the parameters in the

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USSR

UDC 621.385.63

BONDARENKO, B. N., SHUL'GA, V. G., KONOVALOV, V. I., MILYUTIN, S. I.

"Experimental Study of a Model of a Two-Beam Traveling Wave Tube (EVLBV)"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1033-1036

Abstract: An experimental study was made of a model of the EVLBV two-beam traveling wave tube, and the results are compared with the theoretical calculations. In the nonlinear mode the velocity difference has the defining effect for achieving high efficiency of the two-beam traveling wave tube and it has optimal significance. The two-beam traveling wave tube is an efficient centimeter-band electronic device capable of insuring a high amplification factor of 40 decibels with a sufficiently high value of the electron economy 20%. The achieved electron economy is not the design limit. Increasing the space-charge parameter and the input signal level offers further possibilities for increasing the defined efficiency. The developed electron-optical system insures sufficiently good mixing of the beams for the occurrence of effective electron wave interaction. The two-beam traveling wave tube has good possibilities for wide band amplification of the input signals, and by selecting special operating conditions it is possible to reach an amplified frequency

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SHUL'GA, V. G., [illegible], Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1027-1032

nonlinear mode of the ordinary traveling wave tube. This is explained by the relatively small magnitude of the space charge parameter. An increase in the optimal value of the nonuniformity parameter is observed by comparison with the linear mode. This is connected with the high effect of the space charge in the nonlinear mode. There is a clear trend toward an increase in the electron economy with an increase in the space charge parameter and the input signal level. These results agree with the results of the linear theory of a two-beam traveling wave tube and the nonlinear theory of the traveling wave tube. A high value of the electron economy and significant reduction in the saturation space length are possible only for parameter ratios where the existence of an "summing" electron wave tube and traveling wave tube interaction is possible. On the whole, the result of the numerical solution of the equations of the two-beam traveling wave tube in the nonlinear mode indicates that well-founded prerequisites exist for building an efficient microwave amplifier based on the combination of the traveling wave tube and the electron wave tube.

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band of more than two octaves with an amplification nonuniformity no worse than 5 decibels. The experimental results agree well with the theoretical calculations, and the theoretical results can be recommended for use when developing efficient wide-band microwave amplifiers.

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"Depression Factor Of Heterovelocity Electron Flows"

Radiotekhnika. Resp. mezhved. nauchno-tekhn. sb. (Radio Engineering. Republic Interdepartmental Scientific-Technical Collection), 1970, Issue 14, pp 19-23 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No 4A23)

Translation: A computation is presented of the depression factor [koeffitsiyent depressii] for heterovelocity electron beams. In the case under consideration the depression factor forms a matrix. The problem was solved for an arbitrary relative spatial distribution of coaxial beams. The relationships obtained are illustrated by numerical computations which are presented in the form of charts. 2 ref. Summary.

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TITLE--PH CHROMATOGRAPHY ON PAPER IN DETERMINATION OF DISSOCIATION CONCTANTS FOR ANTIBIOTICS OF OLIVOMYCIN, MITRAMYCIN GROUP -U-.

AUTHOR-(03)-ILLARIONOVA, R.P., DYKHOVICHNAYA, D.YE., BONDARENKO, B.N.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR DETERMINATION OF DISSOCIATION CONSTANTS OF ANTIBIOTICS, SUCH AS OLIVOMYCIN, MITRAMYCIN, CHROMOMYCIN AND AURELIC ACID IS DESCRIBED. THE METHOD IS BASED ON DEPENDANCE OF R SUBF VALUES ON PAPER PH CHROMATOGRAMS UPON PK, HYDROGEN ION CONCENTRATION, DISTRIBUTION COEFFICIENTS OF THE SUBSTANCES IN WATER AND ORGANIC PHASES. FACILITY: KIEV INSTITUTE FOR EPIDEMIOLOGY MICROBIOLOGY AND PARAZITOLOGY.

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Welding

UDC 669.018.25

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"Capillary Welding of Sintered Hard Alloys"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug 73, pp 28-33

Abstract: An attempt was made to analyze the process of filling a capillary, formed by the parts being welded, with molten cobalt. The processes occurring in the welding of hard alloys were studied on samples measuring 5x8x35 mm from alloys VK2, VK6M, VK6, VK6V, VK8, VK15, and VK20. Metallographic analysis revealed an absence of eta_1-phase traces as well as graphite. It was established that for the investigated alloy grades there exists a critical value of thickness of the capillary that can be filled with molten cobalt. These capillary thicknesses ranged from 2.0 microns for VK2 up to 18.0 microns for VK20. Under the action of capillary forces the volumes of the alloy lying close to the joint are in a compressive state which enhances the increase of contact area between the carbide particles and a decrease in the thickness of the individual sublayers of cobalt between them and, in turn, makes it possible to determine the amount of liquid entering into the capillary. The experiments showed that at 1390°C and a

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pressure of 0.9 kg/cm^2, plastic flow of hard alloy VK6 occurs which indicates a regrouping of tungsten carbide particles. The mathematics of determining the critical capillary thickness are presented. Three figures, one table, nine bibliographic references.

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